

REMARKS

Claims 2-6, 8, 9, and 11-26 are pending in the application upon entry of the amendments and the new claims. Claims 8, 22, and 23 have been amended to better describe certain aspects of the invention. Claims 24-26 have been added to describe subject matter deleted from claims 8, 13, and 21, respectively. Claims 3-6, 11-13, 15, 16, 20, and 21 have been amended for consistency and/or to cure typographical errors. Claims 1, 7, and 10 have been canceled without prejudice or disclaimer and to expedite allowance of the application. Favorable examination in light of the amendments, the new claims, and remarks which follow is respectfully requested.

Objections to the Specification

The specification has been objected to with respect to the terms "R," "Me," DuPHOS," "COD," "BINAP," "Net," "binaphtyl," "Ac," and "PPh" at page 8. "(R,R)-Me-DuPHOS" is described to represent (-)-1,2-bis((2R,5R)-2,5-dimethylphospholano)benzene) at page 8, lines 5 and 6. "(R)-BINAP" is described to represent (R)-(+)-2,2'-bis(diphenylphosphino)-1,1-binaphthyl at page 8, lines 7 and 8.

One skilled in the art would readily understand that "R" represents a R enantiomer, "Me" represents methyl, "COD" represents 1,5-cyclooctadiene, "NEt₃" represents triethylamine, "Ac" represents an acetic acid moiety, and "PPh₃" represents triphenyl phosphine. These explanations are added to page 8. In view of the foregoing, withdrawal of the objection is respectfully requested.

Indefiniteness Rejection

Claims 4, 5, 7, 8, 10, 11, 13, 15, 21, and 22 have been rejected as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 4, 5, 8, 13, 15, 21, and 22 have been amended to overcome the rejection.

With respect to the term "Keggin type" in claim 11, the metes and bounds of the claim are not uncertain because of the term. The term "Keggin type" was examined and found clear in numerous issued patents (See, for example, U.S. Patent Nos. 6,793,907; 6,777,369; 6,506,932; and 6,025,295). The term is clear and understandable to one skilled in the art.

With respect to claim 15, "(R,R)-Me-DuPHOS" is described to represent (-)-1,2-bis((2R,5R)-2,5-dimethylphospholano)benzene) and "(R)-BINAP" is described to represent (R)-

(+)-2,2'-bis(diphenylphosphino)-1,1-binaphthyl in the claim. For the terms “R,” “Me,” “COD,” “NEt₃,” “Ac,” and “PPh₃,” one skilled in the art would readily understand what these terms represent and these terms are defined in page 8. In view of the foregoing, withdrawal of the objection is respectfully requested.

Obviousness Rejection I

Claims 1, 2, 4-7, and 11-19 have been rejected under 35 U.S.C. § 103(a) over Lefevre et al. (US 3,485,763, hereinafter “Lefevre”) in view of Nichkova et al. (SU 1036775A, hereinafter “Nichkova”). Claim 1 has been canceled. This cancellation renders this rejection moot.

Obviousness Rejection II

Claims 8-10 have been rejected under 35 U.S.C. § 103(a) over Lefevre in view of Nichkova, and further in view of Blasius et al. (US 4,460,474, hereinafter “Blasius”). Lefevre relates to ion exchanger materials which serve to fix ions of caesium and rubidium. Nichkova relates to a method of extracting heavy non-ferrous metals from water solutions (An English translation of Nichkova is attached herewith). Blasius relates to a process for extracting cesium ions from an aqueous solution with an adduct compound in solid form.

To reject claims in an application under § 103, an examiner must establish a *prima facie* case of obviousness. In order to establish a *prima facie* case of obviousness, the cited art reference or references when combined must teach or suggest all claim features. *See MPEP § 706.02(j).* Claim 8 recites “*the heteropoly acid or heteropoly acid anion is anchored to a support material*” and “*the support material comprises an insoluble oxide.*” For example, the heteropoly acid or heteropoly acid anion is anchored to alumina, silica, zirconia, titania, zinc oxide, magnesium oxide, clay materials, active carbons, and/or zeolites.

The cited art documents fail to teach or suggest that a heteropoly acid or heteropoly acid anion is anchored to a support material containing an insoluble oxide. As the Examiner concedes on page 3, lines 10 and 11 of the Office Action, Lefevre and Nichkova fail to teach or suggest a heteropoly acid or heteropoly acid anion that is anchored to a support material containing an insoluble oxide. Lefevre teaches an ion exchange materials prepared by incorporating in zirconium phosphate a potassium or ammonium salt of a heteropoly acid. Lefevre, however, fails to teach or suggest a heteropoly acid or heteropoly acid anion that is anchored to a support material containing an insoluble oxide. Nichkova fails to teach or suggest a heteropoly acid or heteropoly acid anion that is anchored to any support material.

Blasius also fails to teach or suggest a heteropoly acid or heteropoly acid anion that is anchored to a support material containing an insoluble oxide. Blasius teaches an adduct of a crown ether and a heteropoly acid. The “adduct compound is present in the form of a solid ion exchanger phase incorporated in a porous carrier, such as silica gel or in porous aluminum oxide” (column 4, lines 53-56 of Blasius). In Blasius, the heteropoly acid containing adduct is present in the form of a solid ion exchanger phase and the solid ion exchanger phase is incorporated in a carrier. In other words, the heteropoly acid is not anchored to an oxide support. This disclosure teaches away from a heteropoly acid or heteropoly acid anion that is anchored to a support material.

In view of the foregoing, the cited art documents, either alone or in combination, fail to teach or suggest all the features of claim 8 and claim 9, which depends upon claim 8.

Withdrawal of the rejection is respectfully requested.

Obviousness Rejection III

Claims 22 and 23 have been rejected under 35 U.S.C. § 103(a) over Roberts et al. (US 4,413,118, hereinafter “Roberts”) in view of Nevitt (US 4,677,085) and Nichkova. Roberts relates to a process for removing homogeneous catalyst group VIII metals from chemical process streams. The process involves treating the process streams with organic sulfur compounds containing a carbon-sulfur double bond (column 1, lines 7-11 of Roberts). Nevitt teaches regenerating a spent catalyst by contacting it with an aqueous solution of a heteropoly acid (column 1, lines 38-40 of Nevitt).

Claim 22 recites “*contacting the resulting reaction mixture after completion of the reaction with a heteropoly acid or heteropoly acid anion that is anchored to a support material comprising an insoluble oxide, thereby producing a precipitate that is substantially insoluble in the said reaction mixture.*“ Claim 23 recites a similar feature.

Neither Roberts nor Nevitt teaches or suggests a heteropoly acid or heteropoly acid anion that is anchored to any support material. Nowhere do Roberts and Nevitt teach or suggest such a heteropoly acid or heteropoly acid anion. Moreover, as discussed in the previous section, Nichkova fails to teach or suggest a heteropoly acid or heteropoly acid anion that is anchored to any support material. The cited art documents, either alone or in combination, fail to teach or suggest all the features of claims 22 and 23. Accordingly, withdrawal of the rejection is respectfully requested.

Obviousness Rejection IV

Claims 3, 20 and 22 have been rejected under 35 U.S.C. § 103(a) over Roberts in view of Nevitt and Nichkova, and further in view of Lefevre or Blasius. As discussed above, all the cited art documents fail to teach or suggest a heteropoly acid or heteropoly acid anion that is anchored to an oxide support material. As a result, the cited art documents, either alone or in combination, fail to teach or suggest all the features of claims 3, 20, and 22. Accordingly, withdrawal of the rejection is respectfully requested.

Petition for Extension of Time

A request for a three month extension of time is hereby made. Payment is being made through the EFS electronic filing system.

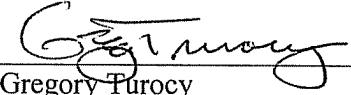
Conclusion

The present application is believed to be in condition for allowance in view of the above comments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063.

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicant's undersigned representative at the telephone number listed below.

Respectfully submitted,
AMIN, TUROCY & CALVIN, LLP



Gregory Turocy
Reg. No. 36,952

24TH Floor, 1900 E. 9TH Street
Cleveland, Ohio 44114
Telephone (216) 696-8730
Facsimile (216) 696-8731